B1

from higher order reflections within cavity **109**. Higher order reflections include, for example, interference between light reflecting from surface **121** and light that reflects first off surface **102**, then by surface **121**, and then again by surface **102**.--

Please replace the paragraph beginning at page 10, line 23 with the following rewritten paragraph:

-- In the analysis that follows, we first consider the optical interference pattern produced by optical frequency tuning in an elemental two-surface interferometer cavity, for example, the cavity formed by surface **121** and surface **102**. The surfaces are separated by a physical gap L and contain a medium with a refractive index n. For example, the gap can be filled with air, which has a refractive index of about one. The product of refractive index and gap thickness, nL, is referred to as the optical thickness (for air this is equal to the physical thickness, L). The total phase difference, φ, between light rays with wavenumber k reflected from surface **121** and light rays which reflect from surface **102** p times is given by:

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$$\varphi(x,y) = 2pknL(x,y) + \Phi = 2pnL(x,y)\frac{2\pi\nu}{c} + \Phi, \qquad (1)$$

where ν is the optical frequency of the light, c is the speed of light, and Φ is an overall constant phase. The x and y dependence of gap L and phase φ are shown explicitly in EQ. 1 to show the spatial variation in phase. In some embodiments, refractive index n may also have an x and y dependence. Extraction of this phase variation profile, or phase map, is the information that is typically of interest in PSI. This explicit x and y dependence will be omitted in the equations that follow for the sake of clarity. --

Please replace the paragraph beginning at page 20, line 1 with the following rewritten paragraph: